

**PATENT COOPERATION TREATY**  
**PCT**  
**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**  
(PCT Article 36 and Rule 70)

REC'D 02 FEB 2005  
WIPO PCT

Applicant's or agent's file reference <b>P9878.WO</b>	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. <b>PCT/IE 03/00139</b>	International filing date (day/month/year) <b>06.10.2003</b>	Priority date (day/month/year) <b>04.10.2002</b>
International Patent Classification (IPC) or both national classification and IPC <b>A47K3/00</b>		
<p>Applicant <b>ROBINSON, Gerard Francis</b></p>		

1. This International preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
  
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
  - This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 4 sheets.
  
3. This report contains indications relating to the following items:
  - I  Basis of the opinion
  - II  Priority
  - III  Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - IV  Lack of unity of invention
  - V  Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - VI  Certain documents cited
  - VII  Certain defects in the international application
  - VIII  Certain observations on the international application

Date of submission of the demand <b>30.04.2004</b>	Date of completion of this report <b>01.02.2005</b>
Name and mailing address of the international preliminary examining authority:  <b>European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465</b>	Authorized Officer <b>Fajarnés Jessen, A</b> Telephone No. +49 89 2399-8189



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EXAMINATION REPORT**

International application No. PCT/IE 03/00139

**I. Basis of the report**

1. With regard to the elements of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1, 3, 4, 6, 7	as originally filed
2, 5	filed with telefax on 17.01.2005

**Claims, Numbers**

1-10	filed with telefax on 17.01.2005
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**Drawings, Sheets**

1/4-4/4	as originally filed
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2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description,      pages:
- the claims,      Nos.:
- the drawings,      sheets:

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5.  This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).  
*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*
6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	1-10
	No: Claims	
Inventive step (IS)	Yes: Claims	1-10
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

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**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Reference is made to the following document:

D1 GB-A-2 348 805

2. The subject-matter of claim 1 is novel and inventive (Article 33(2) and (3) PCT).
  - 2.1 Document D1 is regarded as being the closest prior art, and discloses:
    - a)- a sealing system comprising at least two parts being
    - b)- a longitudinal strip profile 10 and
    - c)- a sealing material 30
    - d)- both adapted in combination to maintain a sealed joint between typically relatively vertical A and horizontal B surfaces, the strip profile comprising
    - e)- a first upper limb 11 having an upper limb upper boundary 12 and an upper limb lower boundary 13 between which there extends an upper limb inner face 15 and an upper limb outer face 14, and
    - f)- from which upper limb inner face 15 there extends at least one second outer limb 19 having an outer limb inner boundary attached to the upper limb 11 and an outer limb outer boundary (see figure 1)
    - g)- between which outer limb boundaries there extends an outer limb upper face 20 and an outer limb lower face 21.
  - 2.2 The problem to be solved by the present invention may be regarded as to modify said known sealing system so that it is capable to accommodate in the case of wall movement while maintaining its sealing properties.
  - 2.3 The solution to this problem as defined in claim 1 consists in that:
    - h)- the longitudinal strip profile is semi-flexible and
    - i)- the at least one second outer limb is flexible and further in that
    - j)- there extends from the upper limb inner face and/or the upper limb lower boundary and/or the outer limb lower face and/or the outer limb outer boundary, at least a third flexible inner limb and/or filler material adapted to sealingly engage an uncured sealing material and to aid the full or substantial isolation of the uncured

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sealing material from the upper limb inner face and/or the outer limb lower face.

- 2.4 This combination of the features of independent claim 1 is neither known nor rendered obvious by the documents cited in the search report.
3. Claims 2 to 10 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.
4. The subject-matter according to claims 1 to 10 is industrially applicable (Article 33(4) PCT).

5. General Comments:

- 5.1 Claim 1 does not fulfil the requirements of Article 6 PCT as it is not supported by the description. According to this claim, the second outer limb is flexible. However, according to the description, page 5, line 30, the second outer limb is semi flexible.

Moreover, there is a contradiction between line 30 in page 5 (semi flexible) and lines 12-13 in the same page 5 (flexible).

- 5.2 Claim 10 does not fulfil the requirements of Article 6 PCT as it is not supported by the description.
- 5.3 According to the requirements of Rule 11.13(m) PCT the same feature should have been denoted by the same reference sign throughout the application. This requirement has not been met in view of the use of:
  - upper limb outer face 18 in claim 1, lines 5-6,
  - second outer limb 20 in claim 1, line 7,
  - inner limb inner boundary 23 in page 5, line 18 but junction 23 in page 6, line 8.

CLAIMS:

1. A sealing system comprising of at least two parts being a semi-flexible longitudinal strip profile and a sealing material both adapted in combination to maintain a sealed joint between typically relatively vertical and horizontal surfaces, the strip profile comprising a first upper limb having an upper limb upper boundary and an upper limb lower boundary between which there extends an upper limb inner face and an upper limb outer face, and from which upper limb inner face and/or upper limb boundaries there extends at least one second flexible outer limb having an outer limb inner boundary attached to the upper limb and an outer limb outer boundary between which outer limb boundaries there extends an outer limb upper face and an outer limb lower face, wherein there extends from the upper limb inner face and/or the upper limb lower boundary and/or the outer limb lower face and/or the outer limb outer boundary, at least a third flexible inner limb and/or filler material adapted to sealingly engage an uncured sealing material and to aid the full or substantial isolation of the uncured sealing material from the upper limb inner face and/or the outer limb lower face.
2. A sealing system as claimed in claim 1, wherein flexibility in the strip profile is achieved through adjustment of the sectional wall thickness and/or co-extruding flexible material at selected points in the strip profile.
3. A sealing system as claimed in any one of the preceding claims, wherein the inner limb and/or filler material may form and/or anchor a sealant reservoir and/or directly engage the sealing material with the horizontal surface in substantial isolation from the remainder of the strip profile.
4. A sealing system as claimed in any one of the preceding claims, wherein additional inner limbs and/or filler material may extend and/or connect together from the upper limb inner face or upper limb lower boundary and/or the outer limb lower face or outer limb outer boundary.

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5. A sealing system as claimed in any one of the preceding claims, wherein that part of the strip profile in contact with sealing material being typically at the interface between the strip and the horizontal and vertical surfaces has a plurality of ribs and/or recesses and/or barbs and/or holes to contact and grip a sealing material and/or an adhesive material.

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6. A sealing system as claimed in any one of the preceding claims, wherein the outer limb upper face is adapted to throw off water over the complementary sealing material.

7. A sealing system as claimed in any one of the preceding claims, wherein the strip may 10 have a flexible lip along the uppermost boundary of the upper limb and the outer most boundary of the outer limb adapted to engage irregular vertical and horizontal surfaces respectively and make the joint more attractive.

8. A sealing system as claimed in any one of the preceding claims, wherein the height of 15 the first limb may be reduced through the provision of a least one score line allowing the easy tearing off of a longitudinal section of strip.

9. A sealing system substantially in accordance with any of the embodiments as herein described with reference to and as shown in the accompanying drawings.

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The invention will hereinafter be more particularly described with reference to the accompanying drawings, which show by way of example only, embodiments of the seal according to the invention, in these drawings :-

- 5 Figure 1 details a sectional view of a strip profile 10 which has an upper limb 11 having an upper limb upper boundary 12 and a upper limb lower boundary 13 between which there extends an upper limb outer face 14 adapted through a series of ridges 15 and recesses 16 to accommodate and grip an adhesive or sealing material it may engage with a vertical surface A (fig2). The height of the upper limb 11 may be easily reduced through the provision of at least  
10 one score line 28 running parallel to the lower boundary 13.

The upper limb 11 has an upper limb inner face 17 from which there extends a flexible outer limb 18 having an outer limb inner boundary 19 attached to the upper limb inner face 17 and an outer limb outer boundary 33 between which there extends an outer limb upper face 20 adapted to throw off water.  
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The outer limb 18 has an outer limb lower face 21 from which there extends a flexible inner limb 22 having an inner limb inner boundary 23 attached to the outer limb inner face 21 and an inner limb outer boundary 24 between which there extends an inner limb upper face 25 and an inner limb lower face 26 adapted to engage and grip a sealing material 30 (fig 2) through the provision of one or more ribs 27.

Figure 2 details a sectional view the strip profile described in figure 1 when installed over a joint defined where vertical surface A (typically a wall) meets a horizontal surface B (typically  
25 a shower tray or bath ledge). A section of the strip profile along score line 29 has been removed and the strip profile upper limb 11 has been adapted through the provision of holes 31 to accommodate adhesive (typically tile adhesive).

The sealant 30 is solidly engaged by inner limb 22 but substantially isolated from upper limb  
30 11 and outer limb 18. Upper limb 11 and outer limb 18 are semi flexible and in the event of

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The main disadvantages of the above arrangements are that in the case of method A, soft lips perish, shrink, harden and leak in shower areas and as the joint expands the sealing lip loses pressure. In the case of B the exposed sealant is unsightly and often de-bonds or tears under  
5 wall movement. The overlapping strips in method C created an unattractive joint line and the butt jointed corner detail may present problems if one wall moves relative to the other. The flexible fin in method E forms the seal and this sealing lip deteriorates in the shower environment. The third limb detailed in method F is incorporated to reduce the volume of sealant required to seal the joint and not to accommodate joint movement.

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It is the object of this invention to provide a sealing system that may substantially reduce the aforementioned problems.

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According to the present invention there is a sealing system comprising of at least two parts being a semi-flexible longitudinal strip profile and a sealing material both adapted in combination to maintain a sealed joint between typically relatively vertical and horizontal surfaces whereby the strip profile comprising of a first upper limb having an upper limb upper boundary and an upper limb lower boundary between which there extends an upper limb inner face and an upper limb outer face, and from which upper limb inner face and/or upper limb  
20 boundaries there extends at least one second flexible outer limb having an outer limb inner boundary attached to the upper limb and an outer limb outer boundary between which outer limb boundaries there extends an outer limb upper face and an outer limb lower face, whereby there extends from the upper limb inner face and/or the upper limb lower boundary and/or the outer limb lower face and/or the outer limb outer boundary, at least a third flexible inner limb  
25 and/or filler material adapted to sealingly engage an uncured sealing material and to aid the full or substantial isolation of the uncured sealing material from the upper limb inner face and/or the outer limb lower face.

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Preferably, flexibility in the strip profile may be achieved through adjusting the sectional wall thickness and/or co-extruding flexible material at selected points in the strip profile.

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